

REMARKS

Claims 1, 3-6, 9-15, 17, 19, and 21-24 are all the claims presently pending in the application. Claims 1, 3-4, 12-15, 17, 19, and 21-24 are amended to more clearly define the invention. Claims 1, 15, 17, 19, 21, and 24 are independent.

These amendments are made only to more particularly point out the invention for the Examiner and not for narrowing the scope of the claims or for any reason related to a statutory requirement for patentability.

Applicant also notes that, notwithstanding any claim amendments herein or later during prosecution, Applicant's intent is to encompass equivalents of all claim elements.

Applicant gratefully acknowledges that claims 3-6, 9-11, 13-14, and 22-23 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, Applicant respectfully submits that all of the claims are allowable.

Claims 1, 15, 17, 19, and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Shimojo et al. reference in view of the Chrin et al. reference. Claim 12 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over the Shimojo et al. reference in view of the Chrin et al. reference and further in view of the Foladare et al. reference. Claim 24 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over the Shimojo et al. reference in view of the Foladare et al. reference.

These rejections are respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

An exemplary embodiment of the claimed invention, as defined, for example, by

independent claim 1, is directed to a connection apparatus for a public network switching system. The switching system having a first plurality of line ports to which a plurality of user terminals are connected, a second plurality of line ports, a first plurality of trunk ports to which a plurality of Internet lines are connected, and a second plurality of trunk ports. The apparatus includes a switching unit and a control unit. The switching unit has a plurality of diverging ports adapted for connection to the second plurality of trunk ports and a plurality of converging ports adapted for connection to the second plurality of line ports. The control unit is responsive to a request signal from one of the user terminals for establishing in the switching unit a plurality of connections specified by the request signal between one of the diverging ports and a plurality of the converging ports. The public network switching system establishes a connection between the one diverging port and the one user terminal and a plurality of connections between the second plurality of line ports and the first plurality of trunk ports corresponding in number to the plurality of connections established in the switching unit.

Conventional dial-up IP services allow subscribers to establish dial-up connections to Internet service providers through a public switched telephone network. The switching systems in these public switched telephone networks connect these subscribers to the Internet service providers in a one-to-one correspondence, thereby requiring that the Internet service providers install equipment in the public switched telephone network that can communicate to the modems of the subscribers with perfect compatibility.

Additionally, as the numbers of communications protocols and transmission speeds increase, the lines that are leased to the Internet service providers must be grouped according to these protocols and transmission speeds using phone numbers to maintain compatibility.

Moreover, with a large number (M) of user terminals requesting simultaneous identical branch connections for a large number (N) of Internet service providers a very large number ($M \times N$) of branch connection paths is required.

Thus, these conventional dial-up IP services suffer the high cost of installed equipment and numbers of leased lines that cannot efficiently provide the service.

In stark contrast, the present invention provides a switching unit that connects to the switching system of the public switched telephone unit. The switching unit of the present invention is capable of significantly reducing the number of branch connections that are required to be established in the switching system of the public switched telephone network. For example, when a large number (M) of user terminals requesting simultaneous identical branch connections for a large number (N) of Internet service providers, ($M \times N$) paths are established, in the switching unit of the present invention only ($M + N$) paths need to be established in the switching system of the public switched telephone network. In this manner, the present invention can greatly relieve the burden of the switching system of the public switched telephone network.

Further, an exemplary embodiment of the present invention may further include multiplexers. In this manner, since the lines between the switching system of the public switched telephone network and the Internet service providers are always lightly loaded with traffic, the access line of each Internet service provider may support multiplexed traffic for a number of user terminals.

Additionally, due to the significant increase in the utilization efficiency of these access lines, the Internet service providers are relieved of the burden of paying high access charges for providing flat rate services to Internet subscribers.

II. THE 35 U.S.C. § 112, SECOND PARAGRAPH REJECTION

The Examiner alleges that claim 24 is indefinite. While Applicant submits that such would be clear to one of ordinary skill in the art to allow them to know the metes and bounds of the invention, taking the present Application as a whole, to speed prosecution claim 24 has been amended in accordance with Examiner Kading's very helpful suggestions.

In view of the foregoing, the Examiner is respectfully requested to withdraw this rejection.

III. THE PRIOR ART REJECTIONS

A. The Shimojo et al. reference in view of the Chrin et al. reference

Regarding the rejection of claims 1, 15, 17, 19, and 21, the Examiner alleges that the Chrin et al. reference would have been combined with the Shimojo et al. reference to form the claimed invention. Applicant submits, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention.

None of the applied references teaches or suggests the features of the claimed invention including establishing a plurality of connections in a switching unit that is specified by a request signal between one of the diverging ports and a plurality of the converging ports. In other words, one of the diverging ports diverges a connection into a plurality of connections with a plurality of converging ports. As explained above, this feature is important for significantly reducing the number of connections that are required to be established in the switching system of the public switched telephone network.

Indeed, the Shimojo et al. reference does not even teach or suggest a switching unit having a diverging port, let alone a plurality of diverging ports.

In the Examiner's response to arguments, Examiner Kading makes it very clear that the Examiner is not providing any weight to the term "diverging." The Examiner alleges:

"applicant's claims say nothing about what a 'diverging port' is other than it is a port. Further, applicant's own specification does not seem to define 'diverging ports' the way applicant has argued. See page 6, lines 2-3, 5-7, and 15-17 of the specification as well as figure 1, where it shows the diverging ports acting as input ports to the control unit from the switching unit. There is nothing in the specification that **specifically** defines that the diverging ports 'must diverge.' In fact it appears that applicant defines the diverging ports as ports. It is true that applicant can act as his own lexicographer. However, if this is the case, applicant must clearly and specifically define his own terms in the specification. See MPEP 2106.II.(C). This is not done here and therefore reading additional limitations from the specification or arguments into the term "diverging ports" of the claims would be inappropriate." (Emphasis original).

Firstly, the Examiner is clearly ignoring the term "diverging" in the claims.

Contrary to the Examiner's characterization of the Applicant's arguments, the Applicant is not trying to read additional limitations into the claims. Rather, Examiner Kading is attempting to read limitations out of the claims.

In the present instance, all of the independent claims recite "diverging ports." However, the Examiner attempts to read the term "diverging" out of the claim and only

interprets the claim as reciting “ports.”

This is clearly improper.

“Finally, when evaluating the scope of a claim, every limitation in the claim must be considered.” (Emphasis original, M.P.E.P. § 2106.II.(C)).

Thus, the Examiner is required to consider every limitation in the claim and cannot ignore the term “diverging” from the claims.

Further, the Examiner fails to interpret the term “diverging ports” in accordance with the plain meaning as is required of the Examiner.

“Claim terms are presumed to have the ordinary and customary meanings attributed to them by those of ordinary skill in the art. . . In the absence of an express intent to impart a novel meaning to the claim terms, the words are presumed to take on the ordinary and customary meaning attributed to them by those of ordinary skill in the art.” (M.P.E.P. § 2106.II.(C)).

“THE WORDS OF A CLAIM MUST BE GIVEN THEIR ‘PLAIN MEANING’ UNLESS THEY ARE DEFINED IN THE SPECIFICATION.

..

“This means that the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification. Ordinary, simple English words show meaning is clear and unquestionable, absent any indication that their use in a particular context changes their meaning, are construed to mean exactly what they say. . . .”

“Claim terms are presumed to have the ordinary and customary

meanings attributed to them by those of ordinary skill in the art.” (Emphasis original, M.P.E.P. § 2111.01).

The Examiner has clearly failed to provide the ordinary, simple English word of “diverging” with the clear and unquestionable meaning of this term.

The Examiner alleges that “There is nothing in the specification that **specifically** defines that the diverging ports ‘must diverge.’” (Emphasis original). However, the plain meaning of the term “diverging” on its own means that the port must diverge. It is not necessary for the specification to “**specifically**” define that the diverging ports must diverge simply because the plain meaning of the term “diverging” requires that the diverging ports must diverge.

Indeed, it is not necessary for the applicant to define the term “diverging port” because that term is well understood by those of ordinary skill in the art.

The Examiner appears to allege that the Applicant must define the term “diverging port”. However, contrary to the Examiner’s allegation, the only time that it is necessary for the applicant to define a term is when the applicant does not intend the plain meaning of a term to apply and the applicant wishes to overcome the presumption that the claim terms are interpreted in light of their ordinary and customary meaning.

“Furthermore, the specification must be reviewed to determine whether the presumption of ordinary and customary meaning is rebutted.

The presumption will be overcome where the patentee, acting as his own lexicographer, has set forth a definition for the term different from its ordinary and customary meaning or where the patentee has disavowed or disclaimed scope of coverage, by using words or expressions of manifest exclusion or

restriction, representing a clear disavowal of claim scope.” (M.P.E.P. § 2111.01.II.)

In the present application, the Applicant has not set forth a definition for the term “diverging” which is different than its ordinary and customary meaning and has clearly not disavowed or disclaimed scope of coverage.

In summary, contrary to the Examiner’s allegations, the Applicant is not attempting to read additional limitations from the specification or arguments into the term “diverging ports.” Rather, the claims expressly include the term “diverging” and do not need to have the term “diverging” read into the claim.

Indeed, it is the Examiner who attempts to read express language out of the claims by ignoring the plain, customary and ordinary meaning of the term “diverging.”

The specification at, for example, page 8, line 23 - page 9, line 2 and Figure 2, clearly explains that the switch fabric 22 establishes a set of branch connections between one of the diverging ports of the switching unit 16 and a number of converging ports. Further, as discussed starting at, for example, page 6, line 3 with reference to Figure 1, diverging ports D1, D2 . . . Dm are clearly ports that are each connectable to converging ports C1, C2, . . . CN. In this manner, the signal received on the one diverging port “diverges” into a number of converging ports.

To further clarify this aspect of the present invention, this Amendment amends the independent claims to clarify that a plurality of connections are established between one of the diverging ports and a plurality of converging ports. Such a clarification is only provided for the Examiner to clarify that the term “diverging” is intended to encompass the customary and ordinary meaning of that term and is not intended to narrow or otherwise alter the scope

of the claimed invention.

The Examiner cites Figure 13 and elements 96 in an attempt to support the allegation that the Shimojo et al. reference discloses a switching unit having a plurality of diverging ports. However, contrary to the Examiner's allegation, the input switch 96 merely switches incoming data to only one of the interior of a corresponding flow control element 94 or a different flow control element 94. (Col. 11, lines 31 - 40). In other words, the input switch 94 of the Shimojo et al. reference does not diverge the input port to multiple output ports as recited by the present invention. Rather, the Shimojo et al. reference merely discloses selecting between individual outputs.

Further, contrary to the Examiner's allegation the switch node 92 is not a public network switching system. Rather, the switch node 92 forms a part of an ATM network (col. 6, lines 4-7).

Indeed, the Shimojo et al. reference does not have anything at all to do with a public network switching system, let alone a public network switching system that establishes a connection between a diverging port and a user terminal and that establishes a connection between a second plurality of line ports and a first plurality of trunk ports.

Clearly, the Shimojo et al. reference does not teach or suggest: 1) a public network switching system; 2) a diverging port; and 3) establishing a plurality of connections in a switching unit that is specified by a request signal between one of the diverging ports and a plurality of the converging ports, as recited by independent claims 1, 15, 17, 19, 21, and 24.

The Chrin et al. reference does not remedy the deficiencies of the Shimojo et al. reference.

Indeed, the Examiner does not allege that the Chrin et al. reference remedies these

deficiencies.

Moreover, Applicant submits that these references would not have been combined as alleged by the Examiner. Indeed, the references are directed to completely different matters and problems.

Specifically, the Shimojo et al. reference is directed to preventing the loss of cells due to congestion in an ATM exchange network by providing a flow control method/apparatus for ATM switch nodes that do not have a flow control function (col. 1, line 1 - col. 4, line 33).

In stark contrast, the Chrin et al. reference is directed to completely different and unrelated problem of providing a large switching system that is capable of processing both narrowband and broadband traffic efficiently and in an integrated fashion. (Col. 1, lines 27-31)

One of ordinary skill in the art who was concerned with preventing the loss of cells due to congestion in an ATM exchange network by providing a flow control method/apparatus for ATM switch nodes that do not have a flow control function as the Shimojo et al. reference is concerned with addressing would not have referred to the Chrin et al. reference because the Chrin et al. reference is directed to the completely different and unrelated problem of providing a large switching system that is capable of processing both narrowband and broadband traffic efficiently and in an integrated fashion. Thus, these references would not have been combined.

Therefore, the Examiner is respectfully requested to withdraw the rejection of claims 1, 15, 17, 19, and 21.

B. The Shimojo et al. reference in view of the Chrin et al. reference and further in view of the Foladare et al. reference

Regarding the rejection of claim 12, the Examiner alleges that the Chrin et al. reference would have been combined with the Shimojo et al. reference and further alleges that the Foladare et al. reference would have been combined with a combination of the Shimojo et al. reference and the Chrin et al. reference to form the claimed invention. Applicant submits, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention.

None of the applied references teaches or suggests the features of the claimed invention including establishing a plurality of connections in a switching unit that is specified by a request signal between one of the diverging ports and a plurality of the converging ports as recited by the independent claims. In other words, one of the diverging ports diverges a connection into a plurality of connections with a plurality of converging ports. As explained above, this feature is important for significantly reducing the number of connections that are required to be established in the switching system of the public switched telephone network.

As explained above, the Shimojo et al. reference and the Chrin et al. reference clearly do not teach or suggest these features.

The Foladare et al. reference does not remedy the deficiencies of the Shimojo et al. reference and the Chrin et al. reference.

Indeed, the Foladare et al. reference does not teach or suggest anything at all that is even remotely related to a diverging port, let alone establishing a plurality of connections in a switching unit that is specified by a request signal between one of the diverging ports and a plurality of the converging ports.

Further, with respect to claim 12, contrary to the Examiner's allegation the Foladare et al. reference does not teach or suggest establishing the plurality of connections in the switching unit if a phone number coincides with one of a set of stored phone numbers.

The Examiner cites col. 6, lines 15-30 and 37-40 of the Foladare et al. reference in an attempt to support the Examiner's allegation that the Foladare et al. reference discloses establishing a connection in a switching unit if a phone number coincides with a stored phone number.

However, contrary to the Examiner's allegation, the Foladare et al. reference does not teach or suggest establishing any connection in a switching unit if a phone number coincides with a stored phone number.

Rather, with reference to the flowchart of figure 2, the Foladare et al. reference discloses a process by which a customer service representative logs into a virtual call center. In particular, the Foladare et al. reference discloses creating a database 46 that stores a remote telephone number for a telephone 64 at a customer service representative station 60 at step 110 (col. 5, lines 11 - 24).

Then, in step 115, the customer service representative uses the computer 62 to log into the call control server 44 via a data network 28 (col. 5, lines 25 - 26). In other words, the customer service representative uses a computer 62 to establish a first connection with the call control server 44 over the data network 66.

The call control server 44 receives a login-ID, password, and the like from the customer service representative to verify the identity of the customer service representative and to authenticate the connection with the customer service representative over the data network 66.

If the call control server 44 authenticates the customer service representative, the process proceeds to step 125, where the call control server 44 instructs the voice response unit and switch 32 to call the customer service representative on the telephone 64. (Col. 5, line 65 - col. 6, line 7). Then, in step 130, the switch 32 calls the customer service representative at the customer service representative's remote telephone number that is stored in the database 46. (Col. 6, lines 8-13).

In other words, after the call control server 44 authenticates the customer service representative, the call control server 44 instructs the switch 32 to establish a second connection over the telephone line 68.

The customer service representative then logs-in and authenticates by providing an ID and a password over the already established second connection. (Col. 6, lines 14 - 36).

Next, in step 140, the switch 32 notifies the merchant server 52 that the customer service representative has been authenticated and is now ready to receive and process incoming phone calls. (Col. 6, lines 37 - 40).

Therefore, the Foladare et al. reference clearly does not teach or suggest establishing a connection in a switching unit if a phone number coincides with a stored phone number.

Indeed, the Foladare et al. reference only discloses establishing a connection in a switching unit at column 6, lines 8-13 in response to an instruction from the call control server after the customer service representative has been authenticated over the data network 66 based upon login-ID, Certificate ID and/or a Cookie from the customer service representatives computer (col. 5, lines 45 - 55).

The Foladare et al. reference does not teach or suggest determining whether any telephone number coincides with a stored telephone number, let alone teach or suggest

establishing a connection if a telephone number coincides with a stored telephone number as recited by claim 12.

Moreover, Applicant submits that these references would not have been combined as alleged by the Examiner. Indeed, the references are directed to completely different matters and problems.

As explained above, one of ordinary skill in the art would not have combined the Shimojo et al. reference with the Chrin et al. reference because they are directed to completely different and unrelated matters and problems.

One of ordinary skill in the art also would not have combined the Foladare et al. reference with either or both of the Shimojo et al. reference and the Chrin et al. reference because the Foladare et al. reference is concerned with the completely different and unrelated problem of providing full call center functionality to remotely located customer service representatives.

Indeed, the Shimojo et al. reference and the Chrin et al. reference has absolutely nothing to do with call centers, let alone remotely located customer service representatives.

Clearly, these references would not have been combined.

Further, as explained above, the Examiner's proposed motivation for modifying the teachings of the Shimojo et al. reference and/or the Chrin et al. reference to prevent fraud and hacking has absolutely nothing to do with "determining whether a phone number exists in a database for the purpose of verifying that a legitimate user is trying to access the system" as alleged by the Examiner.

Indeed, as explained above, the Foladare et al. reference does not rely upon any determination at all with respect to a telephone number in a database.

Rather, the Foladare et al. reference relies upon a login-ID, password, the Certificate ID and/or Cookie from the customer service representative computer 62 to authenticate the customer service representative. (Col. 5, lines 45 - 55).

Therefore, the Examiner is respectfully requested to withdraw the rejection of claim 12.

C. The Shimojo et al. reference in view of the Foladare et al. reference

Regarding the rejection of claim 24, the Examiner alleges that the Foladare et al. reference would have been combined with the Shimojo et al. reference to form the claimed invention. Applicant submits, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention.

None of the applied references teaches or suggests the features of the claimed invention including establishing a plurality of connections between at least one diverging port and a plurality of converging ports in a switching unit if the phone number coincides with one of the stored phone numbers, as recited by claim 24. In other words, one of the diverging ports diverges a connection into a plurality of connections with a plurality of converging ports. As explained above, this feature is important for significantly reducing the number of connections that are required to be established in the switching system of the public switched telephone network.

As explained above, the Shimojo et al. reference clearly does not teach or suggest these features.

As explained above, the Foladare et al. reference does not remedy the deficiencies of

the Shimojo et al. reference.

Indeed, the Examiner does not allege that the Foladare et al. reference teaches or suggests these features.

Moreover, Applicant submits that these references would not have been combined as alleged by the Examiner. Indeed, the references are directed to completely different matters and problems.

As explained above, one of ordinary skill in the art would not have combined the Shimojo et al. reference with the Foladare et al. reference because they are directed to completely different and unrelated matters and problems.

Therefore, the Examiner is respectfully requested to withdraw the rejection of claim 24.

IV. FORMAL MATTERS AND CONCLUSION

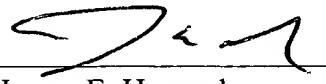
In view of the foregoing amendments and remarks, Applicant respectfully submits that claims 1, 3-6, 9-15, 17, 19, and 21-24, all the claims presently pending in the Application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the Application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

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